

More than the $sp(2)$ BRST theory

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ABSTRACT

The goal of this paper is to prove the possibility of the existence of a generalized BRST symmetry, larger than the $sp(2)$ symmetry. For this purpose, the extended phase space is to be structured on several levels, and several copies of the same type of variables are to be considered. New graduations of the variables will be joined to the standard ghost-number: the “level-number” and the “cop-number”. A generalized BRST differential can be constructed as the sum of several nilpotent and anticommuting operators, such that the first two items of this sum could be identified as the standard BRST operator and, respectively, as the anti-BRST symmetry. The effective construction of this multiple symmetry will be done in the Hamiltonian formalism for a “three levels” irreducible theory.